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SYSTEM/370 IS COMING

Janet Marsh

Yes, it's true! A SYSTEM/370 Model 165 is definitely scheduled to arrive at the Computer Centre in December 1971.

In continuing to expand and improve the service to the user community the Computer Centre has ordered a larger and faster computer, namely a SYSTEM/370 Model 165. The new computer will have 2048K bytes of high-speed core and an internal performance of two to five times that of the SYSTEM/360 Model 65. The additional core will enable the execution of more jobs concurrently and this together with its faster internal speed will significantly improve turn-around.

The Model 165 is designed as a successor to SYSTEM/360 Model 65 and as such will support existing software in use at UTCC; i.e., OS/MVT, HASP and all programs written for the SYSTEM/360 with the following exceptions:

(1) time-dependent programs,
(2) programs that use the ASCII mode bit in the PSW, and
(3) programs deliberately written to cause certain program checks.

The new computer will also support all of the existing input/output equipment (card readers, card punches and printers), storage devices (tapes and disks) and the six remote terminals presently attached to one of the SYSTEM/360s. Converting to the new SYSTEM/370 Model 165 ought, therefore, to cause little if any difficulty to most of our users.

However, the arrival of the new computer will be accompanied by other changes at the Computer Centre, primarily in the reconfiguration of existing equipment. The two existing SYSTEM/360 computers, commonly referred to as System #1 and System #2, currently support two specific programming areas. These are (1) the General Purpose Job Stream (HASP) and the High Speed Job Stream services, and (2) the Interactive Systems service, (i.e., CPS, CPS/RJE, ATS and APL). The new configurations will provide for:

(1) the new SYSTEM/370 Model 165 to be located in Room 106/111 Sandford Fleming Laboratories and to service the General Purpose and the High Speed Job Streams;

(2) the removal of one of the SYSTEM/360 Model 65s;
(3) the remaining SYSTEM/360 computer to be moved to the McLennan Physical Laboratories and to provide the Interactive Systems services. See the Interactive Terminal Systems article farther on in this Newsletter.

This project is being planned very carefully so that a minimum of disruption may be attained. The schedule now looks like this:

- move S/360 #1 to McLennan Physical Laboratories on the weekend of Nov. 20-21. Downtime starts at 5:00 p.m. Friday Nov. 19;
- move input/output facilities for S/360 #2 into Room 111, Sandford Fleming, temporarily (weekend of November 20-21);
- bring up S/360 #1 in time-sharing mode early in the week starting Monday, November 22nd.;
- move input/output facilities again, onto new raised floors in Rooms 107/108 Sandford Fleming on the weekend of December 4 and 5;
- S/370 arrives December 15th, locating into room 111 Sandford Fleming;
- S/360 #2 ceases service at 5:00 p.m. Wednesday December 22nd;
- move I/O facilities yet again into their new 'permanent' location in Room 106;
- S/370 assembly testing by IBM concludes on December 28;
- S/370 acceptance testing by UTCC starts on December 29;
- expect S/370 in full production on January 3, 1972.

Please watch for further publications regarding any changes in standards or techniques affecting the users.

SUGGESTIONS

Janet Marsh

Since the last Newsletter we have received 52 suggestions from our user community. These suggestions are broken down into the following general categories: technical issues (6), pricing and operational policies (5), equipment and physical plant ideas (12), advising services (3), publications (3), general job handling procedures (17), and keypunch service and maintenance (6).

About more program advisors at EUT: The advising service at EUT and ASUT is currently from 9:00 a.m. until 10:00 p.m. Monday to Friday, and from 9:00 a.m. until 5:00 p.m. on Saturday and Sunday at EUT only. Funds to extend these hours or to add extra advisors are not available for this school year. The only alternative would be to reduce the hours covered and add the extra program advisors when needed.

About keypunch drum control documentation: This documentation is now available free-of-charge from the program advisors at EUT and ASUT.

WHY DEVELOPMENT?

A. J. Wickens

The sharp-eyed user may have noticed in the last Newsletter that the UTCC Programming group is now known as Development and wondered about the significance of the name change.

The Computer Centre has had a group called Planning, concerned largely with the investigation and installation of new hardware equipment. The most recent Planning Manager, Mr. J. R. Swenson, resigned recently, leading to the absorption of these functions elsewhere within the Computer Centre. A combination of software and hardware development functions has occurred, with the result that Programming is now known as Development.

What does Development do for the user? A large portion of our time is spent in analyzing what can be done to improve the Computer Centre's performance. We receive valuable input for this task from the Operations and Users' Services Groups and directly from you, the user. For many of the problems a combination of hardware and software changes are required. Examples of this are the addition of OMR at EUT, (to offset the keypunching problem), and of transparency at the New Physics and Arts and Science batch terminals, (to improve service and reduce the costs of many jobs). Less obvious is the work that goes into bringing up a new release of OS or HASP, or providing the necessary software to implement the recently announced Priority/Service Levels feature.

We believe that all of the above will provide improved service and facilities. However, all new system coding must be carefully designed and debugged to provide proper performance. Most of the assembly and testing can be and is done through the production job stream. A large proportion remains which requires a dedicated machine and is done during the 10:00 p.m. to midnight system test time.

Items currently in work include: a hardware monitor which will be used to measure system performance and show how to improve it; an improved method of charging for device setups, differentiating between tapes and disks and recording the number of mounts of each type in a more logical billing; a revised Calcomp package which will allow the user to request special paper, pens, ink, or maximum plot time, without filling out a form, will automate the Calcomp billing, provide backlog reports giving accurate indication of when your plot would be ready and will fix the current bugs which have hindered the reliability of Calcomp Service. The biggest item will be preparation for the new S/370-165

These are but a small percentage of the many development projects being carried out. Some items are studies which may never go into production. Others may take a year before they can be implemented. Many will be transparent, their only effect being an improvement in turnaround or system reliability.

If you have any suggestions on improvements you'd like to see please make them known, either in person to the UTCC management or via the suggestion box.

PERSONNEL CHANGES IN UTCC

Jennifer Schick

During the last month, the Computer Centre has added still more new faces to our staff.

Miss Erika Schmutz is the most recent acquisition in the Accounting Dept. She is, however, not new to the University as she previously worked for Personnel.

Newest to Operations is Ian McNeil who is working as an operator in the Undergraduate Terminals.

Ian Darwin has joined USG full time, after having worked for them for the summer. Still another new advisor in USG is Mrs. Mary New, who has come to us from Harvard University.

Judith Munro has joined the 7094 group increasing their operational force from two to three.

Congratulations to Al Storey who married early in October and only let us know after!!!

PROGRAMMING POSITIONS

Robin Williams

From time to time the Computer Centre receives enquiries from people seeking full time programming positions. Many enquiries are from people interested in applications areas which are being worked on by University groups other than the Computer Centre. We are handicapped in our attempts to direct these people to the proper place by our lack of knowledge of openings in these other groups. In the interests of our users we offer to maintain a file on job openings so that we may direct suitable applicants to them. To do this we should have details of the position available, type of person required and salary ranges. Any department or other group engaged in programming activities who wish to make use of such a service are asked to contact Mr. Robin Williams, Manager, Users' Services Group, Room 128, Sandford Fleming Building, Telephone: 928-2694.

NEWS FROM THE DEPARTMENT OF COMPUTER SCIENCE

Corley Phillips

Faculty & Staff

Dr. Ken Sevcik, who received his Ph.D from Chicago, has joined the faculty with a cross appointment in the Computer Systems Research Group. In addition to teaching an introductory course in the Faculty of Arts and Science, Dr. Sevcik is offering a graduate course on "Scheduling Problems in Computer Operating Systems."

Three visiting professors have joined the faculty this fall. Dr. Christopher T. H. Baker from Manchester University is interested in the numerical solution of integral equations, numerical integration and approximation theory.

Dr. William M. McKeeman, from the University of California in Santa Cruz, holds a cross appointment with C.S.R.G. His interests are in computer architecture, language and compiler design, data banks, and numerical quadrature algorithms.

From the University of Newcastle-upon-Tyne comes Dr. Ken Wright, a numerical analyst interested in the solution of ordinary differential equations using series with collocation.

Professor Steve Cook became the first Undergraduate Secretary of the Department during the summer as Computer Science became an undergraduate department. He is assisted by Mrs. Margaret Chepely.

Dr. Hull's administrative assistant is Corley Phillips. She will be responsible for High School and Industrial Liaison for the Department, as well as for a number of administrative activities within the Department and for following up decisions of the Departmental Council.

Miss Martha Bangay has joined the office staff in Room 1103 Burton Tower, a welcome addition.

IFIP Congress '71

In August the IFIP Congress '71 was held in Ljubljana, Yugoslavia. Professors P. Bonzon, P.I.P. Boulton, S. A. Cook, J. J. Horning, E. S. Lee, J. C. Mason, L. Mezei, K. C. Smith, D. Tsichritzis and Messrs. A. Ballard, I. Farkas, W. R. Lolande, J. N. Potvin, A. Zivian were among the authors and co-authors of papers from the University of Toronto.

Language Change

The Curriculum Committee has announced that the PL/I language, (using the PL/C or PLUTO processor), will be taught in most of the first year Arts and Science courses in 1972/73. FORTRAN has been the language used in previous years.

High School Science Days

The Computer Science Department, in conjunction with the Departments of Astronomy, Mathematics, Physics, and the Faculty of Applied Science and Engineering, is hosting two Saturday Science Days for high school students.

Three topical sessions will be held in parallel at each hour. This will allow the student to 'mix and match' lectures and tours in their areas of interest. Schools in the eastern half of Ontario have been invited to come on November 6th. On this day the Computer Science Department will present two lectures: "How To Make Computers Do What You Want Them To Do", Professor J. Horning and "Art From Computers", Professor Les Mezei. On November 20th for the western half of Ontario, Professor A. Borodin will present his views on "Computers, Technology and Values." On each day a demonstration entitled "Run Your Own Thing" will be given at the Computer Centre.

RECENT ACQUISITIONS IN DEPARTMENT OF COMPUTER SCIENCE LIBRARY

Berge, C.
Principles of combinatorics.
New York, Academic Press, 1971.

Flores, I.
Assemblers and BAL.
Englewood Cliffs, N.J., Prentice-Hall, 1971.

Foster, Caxton C.
Computer architecture.
New York, Van Nostrand Reinhold, 1970

Gee, Richard Dennis.
The minimax solution of overdetermined systems of linear equations.
Toronto, University. Dept. of Computer Science, 1971.
(M.Sc. thesis)

Gilman, Leonard and A.J. Rose.
APL/360: an interactive approach.
New York, Wiley, 1970.

Hamming, Richard W.
Introduction to applied numerical analysis.
New York, McGraw-Hill, 1971.

The International Directory of Computer and Information System Services,
1971. (2d ed.)
London, Europa Publications, 1971.

McIntyre, D.R.
Finite element techniques using piecewise polynomial approximation.
Toronto, Univ. Dept. of Computer Science, 1971. (M.Sc. thesis)

Moenck, R.T.
Algorithms for factoring polynomials.
Toronto, Univ. Dept. of Computer Science, 1971. (M.Sc. thesis)

Myers, C.A.
Computers in knowledge-based fields.
Cambridge, Mass., M.I.T. Press, 1970.

Nilsson, Nils J.
Problem-solving methods in artificial intelligence.
New York, McGraw-Hill, 1971

Polak, E.
Computational methods in optimization: a unified approach.
New York, Academic Press, 1970.

Ralston, Anthony.
Introduction to programming and computer science.
New York, McGraw-Hill, 1971.

Schwarz, H.R.
Numerik symmetrischer Matrizen.
Stuttgart, B.G. Teubner, 1968.

Stuart, B.R.V.
Some interactive manipulations of planar maps and associated games.
Toronto, Univ. Dept. of Computer Science, 1971. (M.Sc. thesis)

U.S. Dept. of Commerce. Bureau of International Commerce.
World markets for U.S. exports: Electronic data processing equipment.
Prepared by the International Marketing Information Service.

PRODUCTION STATISTICS

Jennifer Schick

The number of jobs on the S/360 computer systems has shown a slight further drop since last month, while that of the 7094 appears to be picking up after its summer slump. There has been a marked increase in the use of the HIGH SPEED JOB STREAM services which is undoubtedly attributable to the commencement of classes of the 1971/1972 session.

Table II shows an increase from 1970 to 1971 in the use of our services for both the S/360 systems and the HIGH SPEED JOB STREAM for the month of September. Use of the 7094 service has decreased.

SYSTEM	JUL	AUG	SEPT	SEPT/AUG CHANGE
S/360	16,601	16,200	15,459	-5%
7094	717	689	740	7%
HSJS	27,877	*25,781	44,442	72%
TOTAL	45,195	*42,670	60,641	42%

TABLE I - JOBS RUN - JULY, AUGUST, SEPTEMBER 1971

*These values have been revised from NL 80 to correct an error in reporting.

SYSTEM	SEPT '70	SEPT '71	1970/1971 CHANGE
S/360	11,058	15,459	40%
7094	1,597	740	-54%
HSJS	24,067	44,442	85%
TOTAL	36,722	60,641	65%

TABLE II - COMPARISON OF JOBS RUN SEPT'70 vs.SEPT '71

SYSTEMS RELIABILITY

Don Tough

The reliability of the S/360 Systems for July, August, and September are shown in the following table for comparison.

SYSTEM	MONTH	UPTIME	MTBF
S/360 #1 local & Remote GPJS and interactive Systems	JULY	93.22%	13.6 HRS
	AUGUST	98.54%	45.2 HRS
	SEPTEMBER	98.60%	22.5 HRS
S/360 #2 Local GPJS and HSJS	JULY	96.93%	24.1 HRS
	AUGUST	99.20%	48.1 HRS
	SEPTEMBER	98.13%	20.3 HRS

Uptime improved noticably on System #1 as the rash of hardware problems which had occurred in July did not recur in August or September.

System #2 experienced a similar improvement in uptime when the earlier hardware problems were corrected. Some decrease in uptime occurred in September as the use of the HIGH SPEED JOB STREAM increased and several new compilers were added. It appears that many of the HIGH SPEED JOB STREAM problems have been corrected at this time and service should improve.

CREDIT REQUEST SUMMARY FOR SEPTEMBER

The table below shows a general increase of claims for all causes for September as compared to the record low month of August.

The S/360s produced 15 hardware claims, eight of the problems were with tape drives while five cases of printer jams and ink smears were reported. This accounted for 86% of the S/360 hardware claims.

In the area of software, CALCOMP still caused the most problems, with 46% of the claims. The rest were divided among miscellaneous areas.

Human difficulties ...... jobs cancelled in error, lost output, invalid USG advice and operators mounting the wrong tape, accounted for 75% of the cases.

	SEPTEMBER			AUGUST
	S/360	7094	TOTAL	TOTAL
HUMAN	12	1	13	7
SOFTWARE	15	1	16	18
HARDWARE	15	0	15	3
TOTAL	42	2	46	28
% of Jobs Run			.28%	.16%

SCHOOL OF BUSINESS TERMINAL

Al Jones

The School of Business recently acquired a Data 100 computer to tie in with the central computer system. Campus users with valid authorization codes are invited to make use of this new terminal facility.

The terminal is located at 246 Bloor Street, Room 219. The hours of service are 9:00 a.m. to 5:00 p.m. Monday to Friday. It is operated on a "hands on" basis and instruction manuals are provided at the terminal. "Expert" users are usually on hand to help new users to familiarize themselves with its operation.

Additional assistance may be obtained from:

Professor J. E. Dooley, Room 437, Ext. 3425, School of Business.	or	Peter Hsu, Room 412, School of Business.

Should you require any additional information with regards to the new service, contact either of the above or:

Alan Jones,
Terminal Supervisor,
Room 113, Sandford Fleming,
Extension 6220.

SELF SERVICE BATCH PROCESSING

Al Jones

Commencing Monday, October 18, 1971, users will be allowed to use the card reader and printer at the Engineering Undergraduate Terminal in Room SF-115 as General Purpose Job Stream input and output devices during the late hours.

This service will be open between the hours of midnight and 7:00 a.m. Monday through Friday to users who have valid authorization codes.

The intention is to make this a self service operation. No terminal operators will be on hand during this time. However, the main computer room operators will be available to load paper, free card jams, etc., only after they have completed their primary functions within the main machine room. The delay in responding to a request for assistance should not exceed ten minutes in most cases.

It should also be noted that this time slot is not guaranteed as some booked time jobs occasionally are run after 3:00 a.m. Therefore, there will be times when the latter part of this time period will not be available.

It is imperative that anyone who wishes to utilize this service become familiar with the operation of the hardware. This can be accomplished by contacting Alan Jones the Terminal Supervisor, Room 113, Sandford Fleming Building, Extension 6220.

SSB's ISSUED

51:71:1	New Classes, Priorities, Limits and Defaults
52:71:1	New Special Job Request Form
53:71:1	High Speed Job Stream PL/I Services
54:71:1	ASUT Weekend Service
55:71:1	Local Batch on System #2
56:71:1	Schedule for Thanksgiving Holiday Weekend
56:71:2	Correction to Newsletter #80 (September)
57;71;1	Self Service Batch Processing
58;71;1	Release 20.1 of OS to be tested on Wed. Oct. 20
59:71:1	SPITBOL
59:71:2	Submission of User Tapes

New Calcomp Manual Available

A revised edition of the manual 'PLOTTING WITH CALCOMP USING OS/360' is now available from the UTCC Administration Office, Room 131, Sandford Fleming Laboratories at a new low cost of $.50 per copy. This new manual corresponds to a new version of CALCOMP to be implemented November 1, 1971. Watch for further announcements.

S/360-65 MOVING TO ROOM 333, MCLENNAN LABS

Sam Goldfarb

The Data Communications field is one of the newest and fastest expanding fields in today's Computer environment. New hardware or software products are continually being developed for use in the transmission and manipulation of data between a central computer facility and one or more distant user sites. Several popular applications within this field involve users at remote, personal, typewriterlike terminals and, increasingly, these applications concern non-computer oriented individuals as well as computer specialists. This type of service, in which a group of individual users (each at his own terminal) corresponds with a central computer, is often referred to as time-sharing, interactive, or conversational service.

Although the potential applications for interactive systems are many and varied, the success of a system rests largely with the service that is provided. The terminal user, since he is continuously communicating with the central computer, is extremely sensitive to any difficulties within the Operating System and is very dependent on the reliability of the service he receives.

Plans for the forthcoming S/370 implementation include relocating a S/360 Model 65 to Room 333 of McLennan Labs (by the end of November, 1971), to be used in providing the interactive systems services. The Interactive Systems Group of UTCC is therefore very enthusiastic about the opportunity of providing its services to Computer Centre users via this dedicated machine. The new environment should result in a substantial improvement in the reliability which will be so important to the service.

In addition, anticipated (and immediate) improvements will include:

i) a more suitable Operating schedule;

ii) specially trained, terminal oriented Computer Operators;

iii) allocation of APL system to a region in High Speed Core, resulting in an execution speed (for most APL programs) of about 5 times the speed which is currently available with the Large Capacity Storage unit.

We look forward to serving our users well.

IVERSITY OF TORONTO
COMPUTER CENTRE,
TORONTO, CANADA.

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